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Forest

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September 1993



Polk Inlet Draft Environmental Impact Statement

Ketchikan Pulp Company Long-Term Timber Sale Contract Summary

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Contract No. 53-0109-2-00345
Polk Inlet Environmental Impact Statement



United States
Department of
Agriculture

Forest
Service

Alaska Region

Tongass National Forest
Ketchikan Area
Federal Building
Ketchikan, AK 99901

Reply To: 1950

Date: October 1, 1993

Dear Planning Participant:

Enclosed is the Draft Environmental Impact Statement (EIS) for the Polk Inlet Project Area.

If you received a complete set of documents, the following items should be found in the package:

1. Summary
 2. Draft Environmental Impact Statement, (Volume I)
 3. Draft Environmental Impact Statement, Appendices (Volume II)
- Note that maps are included in Volume I.

If you elected to receive the Summary only, you will find maps bound into the document.

You are encouraged to review and comment on the Draft EIS. Written comments must be received by November 24, 1993. Comments should be addressed to:

Forest Supervisor
Ketchikan Area
Tongass National Forest
Attn: Polk Inlet EIS
Federal Building
Ketchikan, AK 99901
(907) 225-3101





A series of open houses and subsistence hearings will also be held. Each meeting will start with an open house to answer questions you may have, followed with a subsistence hearing. Following is the schedule of open houses and hearings:

Date	Open House Time	Subsistence Hearing Time	Community	Location
November 1	4-6:00 PM	7-9:00 PM	Craig	City Council Chamber
November 2	2-3:00 PM	4-6:00 PM	Hollis	Library
November 3	4-6:00 PM		Hydaburg	City Council Chamber
November 3		7-9:00 PM	Hydaburg	Muni Building
November 4	4-6:00 PM	7-9:00 PM	Klawock	ANB Hall
November 8	4-6:00 PM	7-9:00 PM	Ketchikan	St Johns Church
November 9	4-6:00 PM	7-9:00 PM	Saxman	City Hall
November 10	10-11:00 AM	11-1:00 PM	Kasaan	Community Hall

I want to encourage you to take the time to review and comment on the Draft EIS, as well as to participate in the subsistence hearings. Your input will be used to prepare the Final EIS and the Record of Decision. Your interest in the management of the Tongass National Forest is appreciated.

Sincerely,

DAVID D. RITTENHOUSE
Forest Supervisor

enclosures



Draft Environmental Impact Statement

Polk Inlet

United States Department of Agriculture
Forest Service—Alaska Region
Alaska

Lead Agency

U.S.D.A. Forest Service
Tongass National Forest
Ketchikan Administrative Office

Responsible Official

Forest Supervisor
Ketchikan Administrative Area
Tongass National Forest
Federal Building
Ketchikan, Alaska 99901

For Further Information

Dave Arrasmith
Planning Staff Officer
Ketchikan Administrative Area
Tongass National Forest
Federal Building
Ketchikan, Alaska 99901
907 225-3101

Abstract

The Forest Service proposes to harvest approximately 125 million board feet (MMBF) of timber in the Polk Inlet Project Area. Timber volume would be offered to the Ketchikan Pulp Company (KPC) under the KPC Long-term Timber Sale Contract or to other timber companies under the Ketchikan Area Independent Timber Sale Program. The actions analyzed in this EIS are designed to implement direction contained in the Tongass Land Management Plan (TLMP 1979a, as amended) and the Tongass Timber Reform Act. They also propose management consistent with the preferred alternative (Alternative P) in the TLMP Draft Revision Supplement (1991a). The Draft EIS describes six alternatives which provide a different combination of resource outputs and spatial locations of harvest units. The alternatives are: (1) No Action, proposing no new harvest from the Project Area at this time; (1a) No Action /No Harvest, proposing no timber harvest from the Project Area effective on the date of the signing of the Polk Inlet Record of Decision (early 1994); (2) identifying logical harvest unit groupings and taking most available harvest units within the groups consistent with Forest Plan standards and guidelines, giving consideration to all scoping issues; (3) similar to Alternative 2, but would harvest all available timber in Primary Sale Area (PSA) and include only enough units outside PSA to bring volume to 125 MMBF; (4) emphasizes timber economics and conventional cable yarding in meeting volume of 125 MMBF; and (5) emphasizes retaining contiguous old-growth areas for wildlife habitat.

Summary

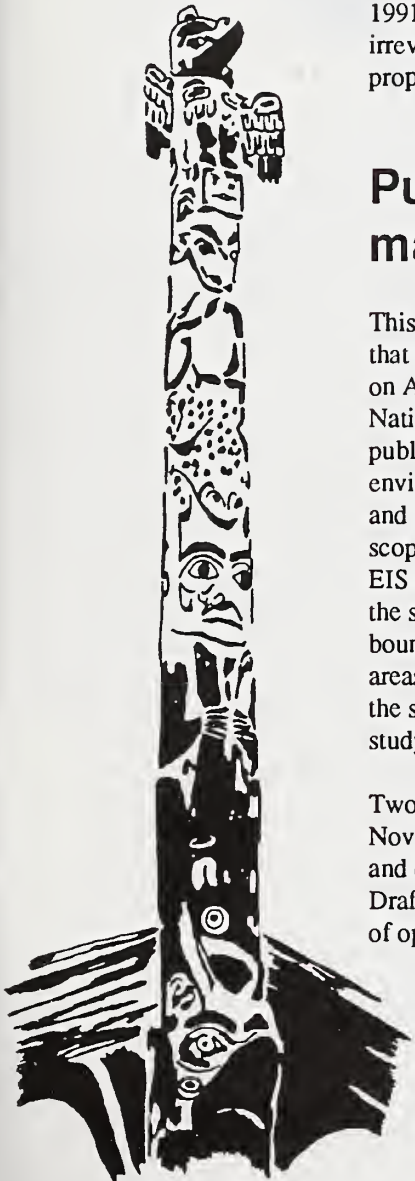
Introduction

In compliance with the National Environmental Policy Act (NEPA) and other relevant State and Federal laws and regulations, the Forest Service has prepared this Environmental Impact Statement (EIS) on the effects of timber harvest in the Polk Inlet Area (Figure S-1) on Prince of Wales Island, Alaska. The proposed action would make approximately 125 million board feet (MMBF) of timber available for harvest to (1) the Ketchikan Pulp Company (KPC) under its Long-term Timber Sale Contract with the Forest Service, or (2) the Ketchikan Area Independent Timber Sale Program. The actions analyzed in this EIS are designed to implement direction contained in the Tongass Land Management Plan (TLMP 1979a, as amended) and the Tongass Timber Reform Act. They also propose management consistent with the preferred alternative (Alternative P) in the TLMP Draft Revision Supplement (TLMP Draft Revision 1991a). The EIS discloses the direct, indirect, and cumulative environmental impacts and any irreversible or irretrievable commitment of resources that would result from each alternative proposed.

Public Participation in the Decision-making Process

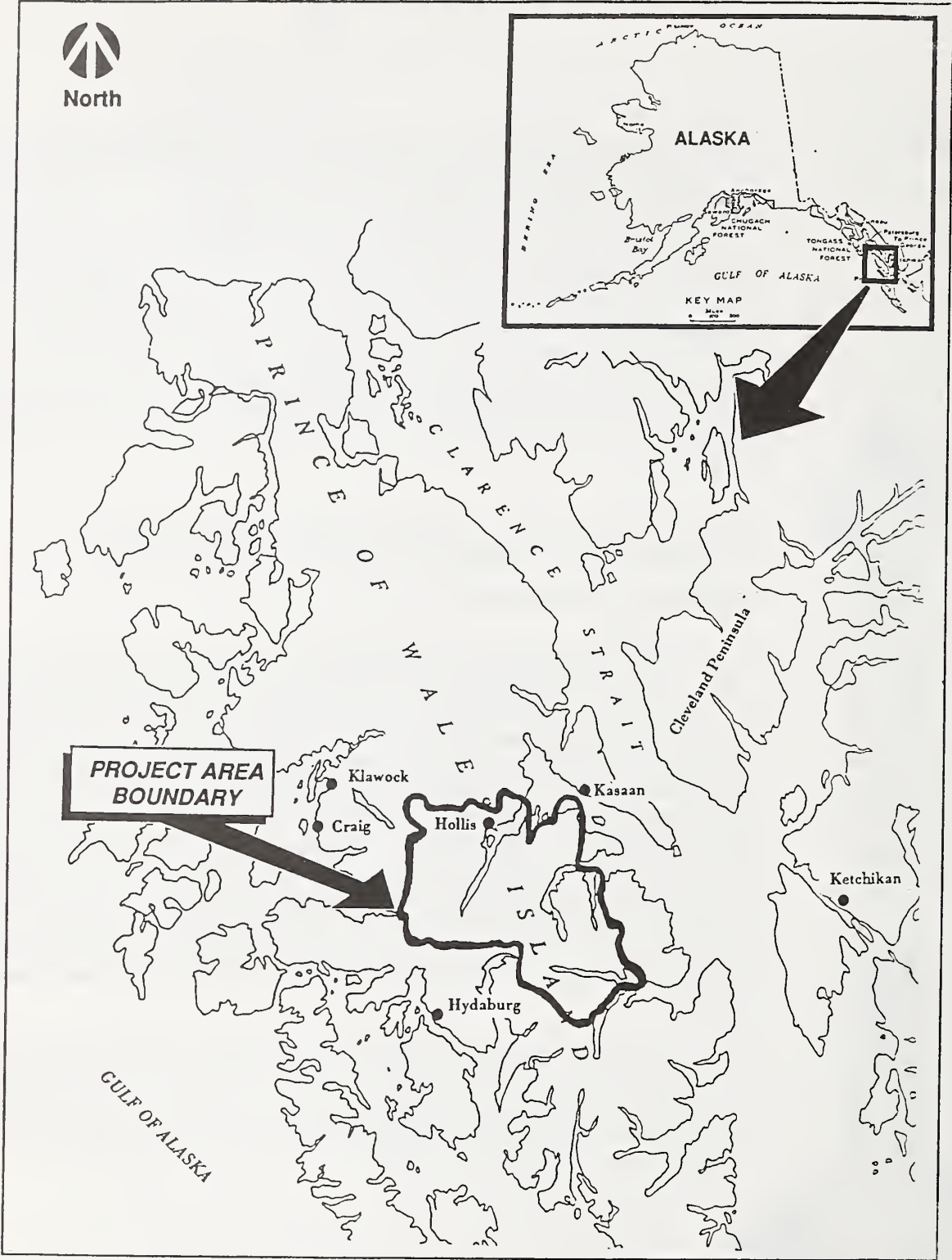
This Draft EIS is designed to inform the public of the proposed action, disclose the effects of that action, and solicit public input into the Final EIS. Public involvement in the process began on August 27, 1991 with the mailing of a scoping package to individuals, government agencies, Native corporations, and interested organizations describing the proposed action and inviting public comment on the scope of the issues and areas of major concern to be addressed by the environmental analysis. Newspaper advertisements were placed in the *Ketchikan Daily News* and the *Island News* on September 7, 1991 containing much the same information as in the scoping package and inviting comment on the scope. A Notice of Intent (NOI) to prepare an EIS was published in the Federal Register on September 6, 1991. The Forest Service continued the scoping process with publication of a revised NOI on August 18, 1992 clarifying the boundaries of the Project Area to include all of Management Areas K17 and K18, including, areas outside the KPC Primary Sale Area. The Project mailing list was built from responses to the scoping solicitations, subsequent Project mailings, and other contacts made throughout the study.

Two reports on the progress of the Project have been mailed to those on the mailing list: (1) In November 1992, summarizing the significant issues derived from the initial scoping process and outlining the tentative frameworks for development of alternatives to be analyzed in the Draft EIS, and (2) in September 1993 informing individuals of the content of the Draft EIS and of opportunities to comment on its findings.



Summary

Figure S-1
Project Area



Public Comment on Draft EIS Invited

Release of the Draft EIS triggers a minimum 45-day public comment period during which the public can comment in written or oral form on the document. The period for public comment on the Draft EIS and the deadline for receipt of written comments are noted in the cover letter accompanying this document and will be publicized in the local media. Written comments on the EIS can be mailed to:

Forest Supervisor
Attention: Polk Inlet EIS
Tongass National Forest
Federal Building
Ketchikan, AK 99901

Comments can also be offered at open houses to be held in conjunction with the subsistence hearings in the communities listed below. Dates, times, and locations are included in the cover letter accompanying this document

Hollis
Klawock
Saxman

Hydaburg
Kasaan
Ketchikan

Public comments and subsistence comments will be analyzed and incorporated into the Final EIS, projected to be released in early 1994, along with the Record of Decision (ROD) that will summarize the alternatives considered and will indicate which one will be implemented. A Project report will be sent to those on the mailing list summarizing the contents of the Final EIS and the ROD.

Decision to be Made

Based on the information contained in this EIS, the Forest Supervisor can decide to (1) select one of the alternatives presented in the Final EIS, (2) modify an alternative as long as the environmental consequences of that action have been fully analyzed in the Final EIS, or (3) reject all alternatives and request further analysis. If an alternative is selected, it will be documented in the ROD.

Purpose and Need for Action

The purpose and need for action is to (1) provide timber volume that will contribute to a 3-year current timber supply requirement of the KPC Contract (Section BO.61) and/or to the Ketchikan Area Independent Timber Sale Program, and (2) move toward the management emphasis or desired future condition as specified in the Forest Plan Management Direction/Emphasis (TLMP 1979a, as amended). The alternatives and actions considered in this analysis are possible approaches to meeting this purpose and need. There is also a need to help satisfy the obligation set by Congress under the Tongass Timber Reform Act (TTRA) of 1990, directing that the Forest Service “. . .to the extent consistent with providing for the multiple use and sustained yield of all renewable forest resources, seek to provide a supply of timber from the Tongass National Forest which meets annual market demand.”

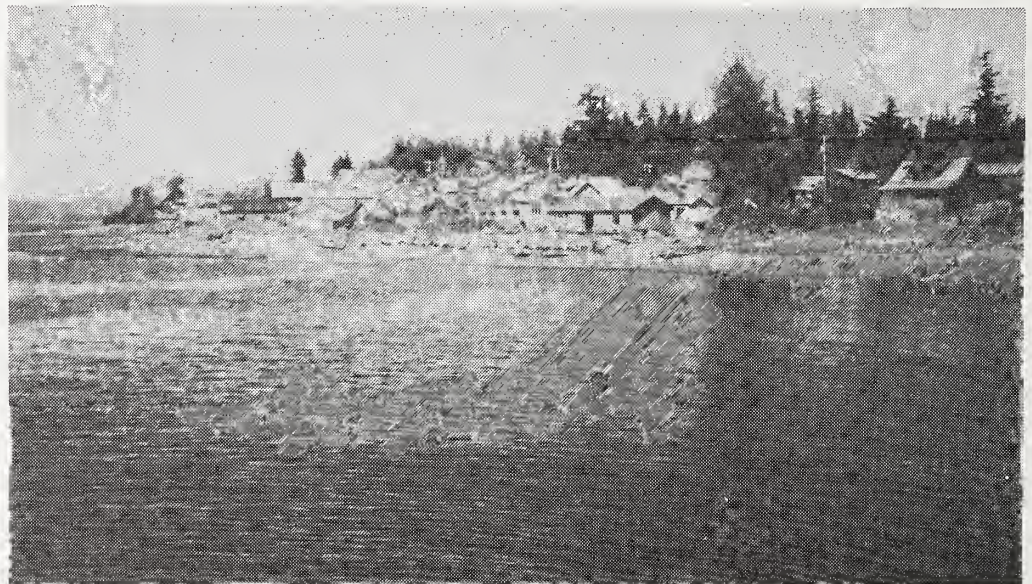
Summary

Project Area

The 208,649-acre Polk Inlet Project Area encompasses a large part of the central portion of Prince of Wales Island, and is located approximately 40 air miles west of Ketchikan, Alaska (Figure S-1). It is near the communities of Hydaburg, Craig, and Klawock on the west side of Prince of Wales Island, and includes the small community of Hollis, which is a ferry terminal site, and the logging camp of Polk Inlet. Access to Prince of Wales Island is by small plane or ferry generally originating in Ketchikan. With the exception of Kasaan, communities within or near the Project Area all are connected by the State road system; tributary Forest System roads provide additional access to the Twelvemile and Polk Inlet area. Also within the Project Area is the Maybeso Creek drainage, a designated Experimental Forest established to study the effects of timber harvest activities on various landforms and fish habitats, and the Old Tom Creek Research Natural Area, designated for research and education and to allow diversity to evolve without measurable human influence.

The Project Area is contained within Management Areas K17 and K18, and includes Forest Plan Value Comparison Units (VCU's) 610 through 613, 618 through 622, 624, 674, and 675 (Figure S-2). Approximately 90,000 acres, or roughly 53 percent of the Project Area is estimated to be commercial forest land, which is land from which timber may be harvested for commercial sale.

Hydaburg

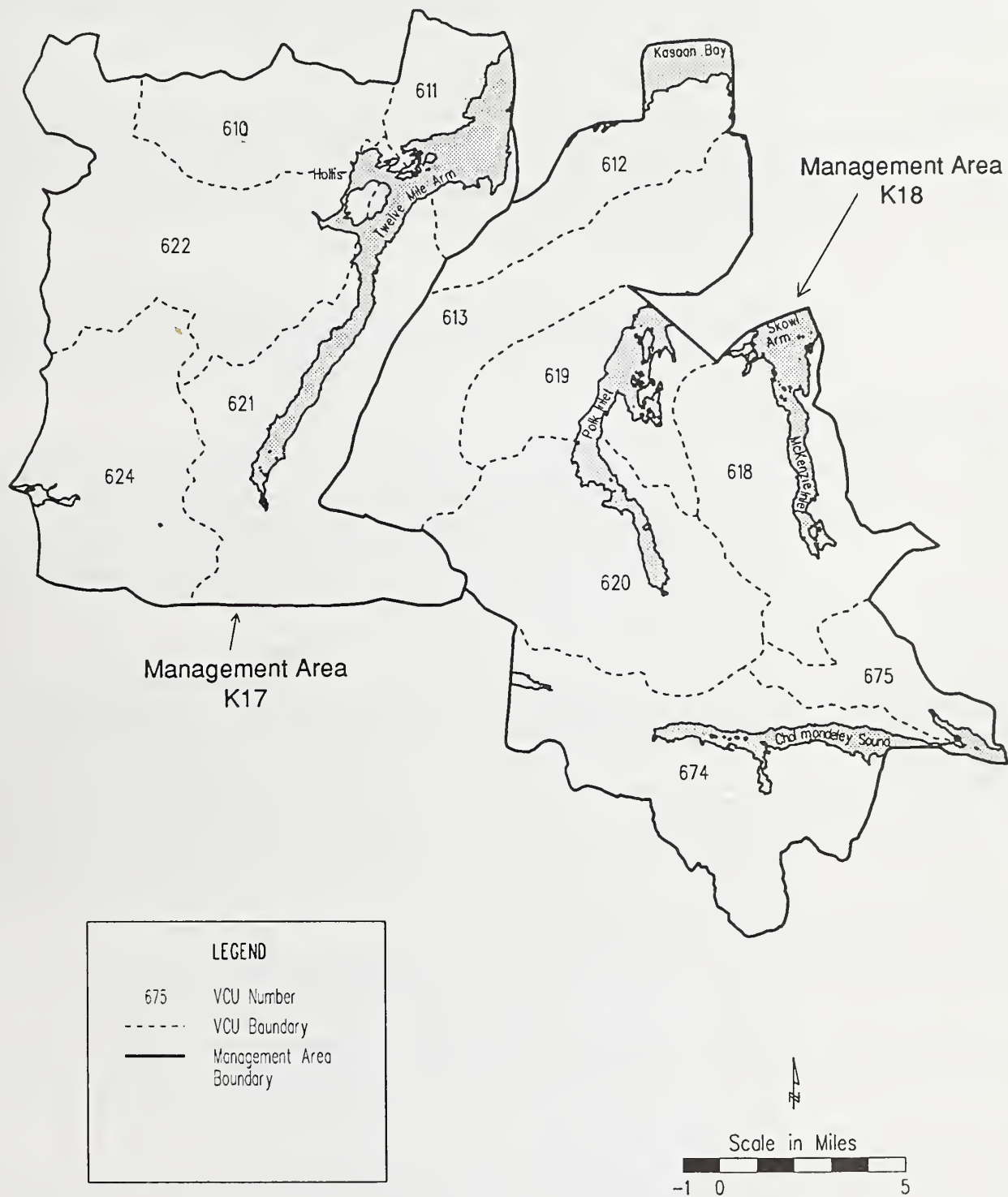


Background

KPC Long-term Contract

The Forest Service signed a Long-term Timber Sale Contract with the KPC on July 26, 1951 authorizing the KPC to purchase approximately 8.25 billion board feet (BBF) of timber throughout the contract area. Under the terms of the contract, modified in 1991, the Forest Service is required to "develop a tentative Offering schedule. . .[which] shall list sufficient timber volume and schedule commencement of the NEPA process. . .to provide [KPC] a Current Timber Supply sufficient for at least three years of operations. . . ." Further, the Forest

Figure S-2
MA's and VCU's



Summary

Service is required to “seek to specify sufficient Offerings to maintain a Current Timber Supply in all Offering areas that totals at least three years of operations. . .and which meets the production requirements of [KPC’s] manufacturing facilities.” The most recent 3-year analysis of Current Timber Supply (February 15, 1992) requires the Forest Service to seek to maintain an annual supply of 615 MMBF of harvestable timber that has been cleared through the NEPA process.

Forest Plan

The National Forest Management Act of 1976 (NFMA) directs each National Forest to prepare an overall plan of activities. The Forest Plan provides land and resource management direction for the Forest. It establishes Land Use Designations (LUD’s) to guide management of the land for certain uses, much as zoning ordinances establish policy for city land use. The LUD’s describe the activities that may be authorized within the VCU’s, the boundaries of which usually follow easily recognizable watershed divides.

For the Tongass National Forest, the Forest Plan is the Tongass Land Management Plan of 1979, as amended in 1986 and again in February 1991 (TLMP 1979a, as amended) as a result of the TTRA. The Forest Plan currently is undergoing revision as required by the NFMA. A Supplement to the TLMP Draft EIS (TLMP Draft Revision) was issued in 1991 (TLMP Draft Revision 1991a).

Until the ROD for the Draft Revision is signed, the TLMP, as amended (TLMP 1979a, as amended) remains in effect. The Polk Inlet EIS tiers to the TLMP EIS (TLMP 1979a, as amended) and the Alaska Regional Guide EIS (1983). It also proposes management consistent with the preferred alternative (Alternative P) in the Draft Revision (TLMP Draft Revision 1991a). Documented analysis in TLMP or the TLMP Draft Revision is referenced rather than repeated in some instances in this EIS. In cases of conflicting direction, the most restrictive standards and guidelines were applied.

Existing Condition and Management Emphasis (Desired Future Condition)

The Project Area includes diverse terrain from inlets, bays, and beach fringe to alpine slopes and ridges. A variety of landforms and vegetative communities exists between the two elevational extremes. Eighty percent of the Project Area land is forested with a majority of the forest land classified as old growth. The most prolific conifer species found in the area are western hemlock and Sitka spruce. Water is a major component of the landscape from the long fjords to drainages dissecting slopes of varying steepness and complexity. Muskegs and lakes, both large and small, are found across the Project Area. The Project Area provides settings for many types of outdoor recreation including fishing, big game hunting, scenic viewing, automobile travel, motor boating, and hiking. The visual character of the area is an important resource for tourism development.

The forests, shorelines, stream, and rivers of Southeast Alaska provide habitat for over 300 species of birds and mammals. Management Indicator Species (MIS) in the Project Area for wildlife include the Sitka black-tailed deer, black bear, river otter, marten, gray wolf, Vancouver Canada goose, bald eagle, red-breasted sapsucker, hairy woodpecker, and brown creeper. Anadromous and resident fish occupying Project Area streams are important to sport, commercial, and subsistence uses throughout Southeast Alaska. Coho and pink salmon are MIS for anadromous fish and Dolly Varden char is the MIS for resident fish for this project.

In the future, under the Forest Plan LUD’s established for the Polk Inlet Project Area, about 52 percent of the Project Area would be subject to modification in the form of timber harvest, road construction, and developed types of recreation. Another 21 percent would be characterized by

moderate amounts of timber harvest that modify the landscapes but still maintain a basically natural appearance. Diversity would change with large areas presenting a mosaic of timber harvest units of varying sizes and ages, crossed by roads and interspersed with areas of old growth and nonforest vegetation. Old growth would remain in areas that are unsuitable for timber harvest or within areas not programmed for harvest, such as no-harvest areas within riparian and beach fringe/estuary LUD's. About 14 percent of the Project Area (Old Tom Research Natural Area, beach and estuary fringe, and riparian buffers) would be left unmodified or in a near natural state.

Achievement of the desired future condition will require many decades. It will be reached by applying integrated resource management practices that are responsive to site-specific conditions such as those represented in the Polk Inlet Project Area. The action alternatives analyzed in this EIS provide different ways of moving toward the Forest Plan desired future condition in the Project Area.

Issues Addressed in the EIS

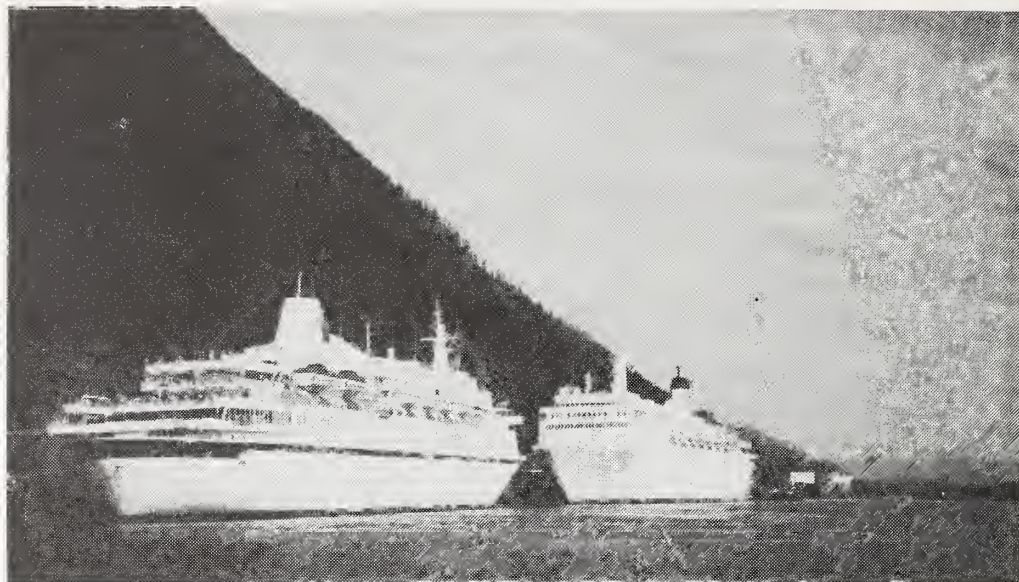
Based on consultation conducted with members of the public and government agencies, the scoping comments received on the Polk Inlet Project, and the internal scoping process, eight broad issues were identified that were determined to be significant and within the scope of the EIS. These eight issues listed below represent concerns raised by the public, agencies, or the Forest Service. They are addressed through land use allocation at the Forest Plan level, implementation of standards and guidelines defined by the Forest Plan, development of Project-specific mitigation measures, and through alternative development.

1. **Wildlife Habitat**—The effects of timber harvest and associated road construction on species dependent on old-growth habitat and the long term disposition of previously mapped old-growth habitats in the Project Area are the key concerns of this issue.
2. **Fish Habitat and Water Quality**—This issue addresses public concern for maintaining water quality in streams and nearshore marine waters which provide habitat for anadromous, resident, and marine fish.
3. **Subsistence**—Primary concern is on the potential effects, as well as the cumulative effects, of timber harvest and road construction on the abundance and distribution of subsistence resources.
4. **Timber Economics and Supply**—This issue encompasses concern with the amount of timber available and proposed for harvest, methods of timber harvest, and balancing timber production with other Forest uses. It also includes concern with ensuring cost-effective timber harvest.
5. **Visual Quality, Recreation, and Tourism**—Public concern centers on the effect of timber harvest on visual quality and area recreation values including sport hunting and fishing, guiding, and tourism.
6. **Social and Economic Factors**—The key concern is what social and economic effects the proposed activities would have on the stability and lifestyles of communities in the Project Area and on the resource-based industries such as commercial fishing, sport hunting and fishing, guiding, tourism, and timber upon which these communities depend.



Summary

Cruise ships



7. Local Water Supplies—This issue reflects concern that logging and associated activities could affect the quality of the local water supply of Hollis.
8. Caves—Concern with this issue centers on how cave resources in the Project Area will be managed.

Issues Not Considered in Detail in this EIS

Several other issues were raised during the project that fall outside the scope of this project-specific EIS. In some instances they are more appropriately addressed at the Forest Plan level; in others, they must be dealt with legislatively. Some issues are addressed on a limited, project-specific basis (e.g., roads, identification of enhancement opportunities) within the EIS but cannot be dealt with on the broader basis sought by commenters. Briefly, they are:

- A. Limit the Small Business Set-aside Program to qualified small business (national level management decision).
- B. Extend the road system in the Tongass National Forest (Forest Plan decision).
- C. Fund enhancement opportunities for fisheries, soil productivity, and recreation (forest-wide or regional decision).
- D. Address below-cost timber sales (national issue).
- E. Promote recreational opportunities on Prince of Wales Island by business interests and private citizens (outside of scope).
- F. Allow road access for timber harvest during the 1992 fish protection timing window (the EIS was not released until 1993).

Development of Alternatives

Each alternative presented in this EIS represents a different response to the issues discussed above. Four action alternatives were developed that meet the stated purpose and need of the project. Each action alternative consists of a site-specific proposal developed through intensive interdisciplinary timber harvest unit and road design based on ground verification of all units and roads considered, along with 1991 color aerial photos, topographic maps, and a large quantity of available resource data in Geographical Information System (GIS) format.

Items common to the framework of all alternatives are:

- Each action alternative considered for detailed study meets the stated purpose and need of the project as closely as possible.
- Each action alternative complies with all applicable laws and regulations including the National Forest Management Act, 1990 Regional Planning Act, the Alaska Regional Guide, the TLMP (TLMP 1979a, as amended), the TLMP Draft Revision (TLMP Draft Revision 1991a), TTRA, ANILCA, and ANCSA.
- Each alternative is consistent with the standards, guidelines, and land allocations of TLMP as amended and Alternative P of the TLMP Draft Revision.
- Each alternative incorporates ecosystem management opportunities.

Alternatives Considered But Eliminated from Detailed Study

A number of alternatives were considered early in the study but were not carried through for full analysis in the EIS for various reasons. Those alternatives and the rationale for eliminating them from full analysis are described below.

Alternative A

This alternative equates to the harvest unit pool. It responds to the issue of how much timber is available in the Project Area during this entry. This alternative would have provided for approximately 195 MMBF of sawlog plus utility volume derived from 160 harvest units. It was not considered in detail because it exceeded the stated purpose and need by 56 percent.

Alternative B

Several agency and public comments requested that the Forest Service analyze a reduced harvest within the Polk Inlet Project Area. No specific harvest volume, however, was proposed in these comments. Because of the defined purpose and need of the project, a lower volume alternative was not considered in detail. More information on why lower volumes were not considered is included in Appendix A of this EIS.

Alternative C

Several public comments requested that the Forest Service analyze an alternative that would keep intact all previously mapped old-growth areas during this entry. Under the TLMP Draft Revision standards and guidelines, old-growth habitat will remain unaltered in beach, estuary, TTRA buffers, research natural areas, and LUD I and LUD II areas, as well as in unsuitable commercial forest land. Previously mapped old growth consequently are considered as part of the tentatively suitable and available timber base, unless otherwise excluded. This alternative

Summary

was analyzed to the extent of determining that the maximum volume it could produce was approximately 102 MMBF. Because of the defined purpose and need of the project, this alternative was not considered in detail.

Alternatives Considered in Detail

Six alternatives were considered in detail in the EIS analysis. Alternative 1, the No-Action Alternative, would not implement any changes from the existing operating plan; the Polk Inlet Project Area would remain subject to natural changes only, after all previously approved timber (1989-94 EIS) harvest units have been cut. Alternative 1a is a variation of Alternative 1; it would cause the Project Area to remain subject to natural changes only and halt completion of the 1989-94 EIS on the date the Record of Decision (ROD) for the Polk Inlet Project is signed. Alternatives 2, 3, 4, and 5 represent different means of satisfying the purpose and need by harvesting approximately 125 MMBF, while responding with different emphasis to the various issues. Implementation of these action alternatives would be additional to the full implementation of the 1989-94 EIS. The No-Action Alternative (Alternative 1) provides the baseline against which the effects of each action alternative on the existing condition of the Project Area are measured. Maps of these alternatives are included with this summary. A summary comparison of the resource and economic outputs and of the environmental consequences of the alternatives is found at the end of this discussion.

Alternative 1 (No Action)

Framework—Alternative 1 would result in no new timber harvest or road construction in the Polk Inlet Project Area at this time. It does not preclude harvest of units analyzed under previous NEPA documents but not felled as of the Polk Inlet ROD (early 1994). Under this alternative, replacement timber volume probably would not be available from somewhere else within the Ketchikan Area at this time. Alternative 1 represents the existing condition of the Project Area as described in Chapter 3 of the EIS.

Resource Outputs—There are no new timber harvest outputs associated with this alternative. Timber harvest as well as road and log transfer facility (LTF) construction would cease in late 1994 following full implementation of the 1989-94 EIS.

Economic Outputs—Because Alternative 1 would result in no new timber harvest or road construction beyond that which is already approved, there would be no timber-related economic outputs.

Alternative 1a (No Action/No Harvest)

Framework—The framework for this alternative is to propose no timber harvest from the Polk Inlet Project Area effective on the date of the Polk Inlet ROD (early 1994). It precludes the harvest of units analyzed under previous NEPA documents but not yet felled as of the ROD date. This affects an estimated 52 of the 95 harvest units scheduled for harvest in the Polk Inlet Project Area under the 1989-94 EIS. This alternative serves as an additional benchmark against which to measure the effects of the action alternatives.

Resource Outputs—There are no new timber harvest outputs associated with this alternative; rather, there is a reduction in timber harvest-related outputs relative to Alternative 1. Under Alternative 1a, 52 fewer units, totaling approximately 2,587 acres and 75 MMBF, would be harvested. Alternative 1a would also eliminate the need for construction of 35 miles of new roads and the development of three LTF's—two at McKenzie Inlet and one near Little Coal Bay.

Economic Outputs—Under Alternative 1a, receipts to the State of Alaska and the number of timber jobs created would be reduced relative to Alternative 1.

Alternative 2

Framework—The framework for Alternative 2 consists of implementing the Forest Plan by identifying logical harvest unit groupings and taking most available harvest units within these groupings consistent with standards and guidelines, giving consideration to specific scoping issues. Emphasis was placed on MA K17, which is in the KPC Primary Sale Area. Scoping issues considered in the selection of units include wildlife habitat (Issue 1); subsistence (Issue 3); timber economics (Issue 4); and visual quality, recreation, and tourism (Issue 5). The wildlife habitat issue was addressed by avoiding harvest in large unfragmented areas of old growth. The subsistence issue was addressed by focusing on the wildlife issue and by limiting harvest activities along Twelvemile Arm and in the vicinity of Hollis. Timber economics were addressed by limiting the inclusion of units with low economic viability. The visual quality, recreation, and tourism issue also was addressed by limiting harvest activities along Twelvemile Arm and the vicinity of Hollis.



Resource Outputs—Implementation of Alternative 2 would result in the harvest of 4,459 acres in 100 harvest units producing approximately 125 MMBF of net sawlog and utility volume. Average unit size would be about 45 acres and 5 units would exceed 100 acres. Of this harvest, 5 units totaling 360 acres would be partial cut; the remainder would be cut using one of several variations of clearcut. Thirty percent of the units would be helicopter yarded and the remainder would be yarded by conventional methods. Approximately 48 miles of new road would be constructed to implement the harvest and 1 mile of existing road would require reconstruction. No new LTF's would be needed. A floating camp near Little Coal Bay would be required to harvest 10 MMBF; the existing logging camp at Polk Inlet could support the harvest of the remaining 115 MMBF.

Economic Outputs—For purposes of this EIS only, preliminary analysis indicates that Alternative 2 would produce an overall net mid-market stumpage value from \$30.41 to \$42.53 per thousand board feet (MBF), depending on the cost method used. The two cost methods are based on different methods of estimating helicopter logging costs. Using a discount rate of 4 percent, the present net value (PNV) of Alternative 2 was estimated to be in the range of -\$0.97 million to \$0.55 million. Payments to the State of Alaska under this alternative were estimated at \$2.91 million. Average annual jobs provided were estimated at 233 over 4 years.

Alternative 3

Framework—The framework for Alternative 3 emphasizes harvesting in MA K17 with only enough units in MA K18 included to bring the volume up to 125 MMBF. The harvest units in MA K18 are arranged in logical groupings and emphasize geographic areas not included in other alternatives.

Resource Outputs—If Alternative 3 were implemented, it would result in the harvest of 113 harvest units producing approximately 127 MMBF of net sawlog and utility volume. Average unit size would be about 43 acres and 4 units would exceed 100 acres. Of this harvest, 10 units totaling 610 acres would be partial cut and the remainder would be cut using one of several variations of clearcut. Thirty-five percent of the units would be helicopter yarded with the remainder yarded by conventional methods. Approximately 56 miles of new roads would be constructed and 1.5 miles of existing road would require reconstruction. One new LTF would be needed near Sunny Cove. A floating camp at or near Sunny Cove would be required to harvest 5 MMBF; the existing logging camp at Polk Inlet could support the harvest of the remaining 120 MMBF.

Summary

Economic Outputs—Under this EIS, preliminary analysis indicates that Alternative 3 would produce an overall net mid-market stumpage value in the range of \$8.70 to \$23.96 per MBF. The PNV of Alternative 3 was estimated to be in the range of -\$4.16 to -\$2.21 million. Payments to the State of Alaska resulting from harvest under Alternative 3 were estimated at \$2.95 million. Over 4 years, 244 jobs are estimated to be provided.

Alternative 4

Framework—The framework for Alternative 4 emphasizes timber economics and conventional cable yarding methods while meeting a volume of 125 MMBF. It would include less helicopter yarding than the other action alternatives. It emphasizes a positive net economic return for the proposed harvest units by attempting to minimize logging and road construction costs.

Resource Outputs—Under Alternative 4, 4,044 acres in 113 units would be harvested producing approximately 126 MMBF of net sawlog and utility volume. Average unit size would be about 46 acres and 4 units would exceed 100 acres. Of this harvest, 3 units totaling 202 acres would be partial cut and the remainder would be cut using one of several methods of clearcut. Ten percent of the units would be helicopter yarded with the remainder yarded by conventional methods. Approximately 54 miles of new roads would be constructed and 1 mile of existing road would require reconstruction. One new LTF would be needed near Chomly on the West Arm of Cholmondeley Sound. A floating camp near Chomly would be required to harvest 5 MMBF and the floating camp to be developed near Little Coal Bay under the 1989-94 EIS would support another 10 MMBF; the existing logging camp at Polk Inlet could support the harvest of the remaining 110 MMBF.

Economic Outputs—Under this EIS, preliminary analysis indicates that Alternative 4 would produce an overall net mid-market stumpage value in the range of \$35.98 to \$41.46 per MBF. The PNV of Alternative 4 was estimated to be in the range of \$0.11 million to \$0.80 million. Payments to the State of Alaska resulting from harvest under Alternative 3 were estimated at \$3.33 million. An annual average of 231 jobs over 4 years are estimated to be provided if Alternative 4 were implemented.



Alternative 5

Framework—The framework for Alternative 5 emphasizes retaining contiguous old-growth areas for wildlife habitat. It would seek to defer harvest activities and road construction in those areas that currently contain relatively unfragmented old growth (e.g., along Cholmondeley Sound and Sunny Creek) and that would better link large old-growth areas with the Project Area. It would avoid harvest in most areas of previously mapped old growth except those that are in partially fragmented land. It would avoid harvest in the Indian Creek drainage and other areas of high wildlife value. The volume output would be maintained at approximately 125 MMBF.

Resource Outputs—If Alternative 5 were implemented, 4,313 acres in 92 units would be harvested producing approximately 124 MMBF of net sawlog and utility volume. Average unit size would be about 47 acres and 5 units would exceed 100 acres. Of this harvest, 10 units totaling 583 acres would be partial cut and the remainder would be cut using one of several methods of clearcut. Thirty percent of the units would be helicopter yarded with the remainder yarded by conventional methods. Approximately 43 miles of new roads would be constructed and 1 mile of existing road would require reconstruction. No new LTF's would be needed. A floating camp to be developed near Little Coal Bay under the 1989-94 EIS would support 10 MMBF; the existing logging camp at Polk Inlet could support the harvest of the remaining 115 MMBF.

Economic Outputs—Under this EIS, preliminary analysis indicates that Alternative 5 would produce an overall net mid-market stumpage value in the range of \$30.86 to \$45.36 per MBF. The PNV of Alternative 5 was estimated to be in the range of -\$0.79 to \$1.00 million. Payments to the State of Alaska that would result from harvest under Alternative 5 were estimated at \$3.00 million. An annual average of 230 jobs over 4 years are estimated to be provided if Alternative 5 were implemented.

Little Coal Bay Subalternative

The group of units and roads just south of Kasaan Bay in VCU's 612 and 613 is commonly referred to as the Little Coal Bay area. This grouping of harvest units is included under Alternatives 2, 4, and 5. A minor subalternative was considered for this area to reduce harvest costs associated with this area.

The 1989-94 EIS includes LTF construction, road construction, and timber harvest in the Little Coal Bay area, which has not yet been implemented. Instead of implementing the 1989-94 construction and harvest followed by the Polk Inlet Little Coal Bay construction and harvest, both projects could be combined and LTF construction avoided by hauling timber to existing LTF's on Native corporation land at Kina Cove and/or Smith Cove. Three options within this subalternative were considered:

- Haul all timber northwest to Kina Cove. The Little Coal Bay LTF and 1.3 miles of road to the LTF would not be needed; 1.2 miles of road would be required to connect the Little Coal Bay area with the Sealaska Native Corporation road system to the west and ultimately to the LTF at Kina Cove.
- Haul all timber southeast to Smith Cove. The Little Coal Bay LTF and 1.3 miles of road to the LTF would not be needed; 0.3 miles of road would be required to connect the Little Coal Bay area with the Kavilco Village Corporation road system to the east and ultimately to the LTF at Smith Cove.

Summary

- Haul all timber in the west portion of the harvest unit grouping to Kina Cove and haul all the timber in the east to Smith Cove. The Little Coal Bay LTF and 1.3 miles of road to the LTF would not be needed; 1.5 miles of road would be required to connect the harvest area roads with Native corporation road networks on the west and east.

Construction costs would be similar or slightly lower for the various options, but log haul costs would be higher relative to the original plan. Environmental consequences would not be appreciably different except for those associated with the Little Coal Bay LTF construction, which would be avoided under the subalternatives.

Comparison and Evaluation of Alternatives

Table S-1 summarizes the physical and economic outputs of the alternatives and Table S-2 summarizes the environmental consequences of each alternative. These tables present the information in a format that facilitates comparison. All numbers presented in these two tables are either absolute or relative to Alternative 1. Thus, Alternative 1a numbers do not show a change from current conditions, but rather display changes relative to Alternative 1. Finally, the alternatives are compared and evaluated relative to the significant issues that drove the EIS.

Issue 1: Wildlife Habitat

The major effects on wildlife habitats in all action alternatives are the reduction of old-growth forest habitat and the increased access provided by the construction or reconstruction of roads into presently unroaded areas (Figure S-3). Alternative 3 would result in the greatest effect on old-growth habitat and effects due to increased access, while Alternative 5 would result in the least among the action alternatives. Impacts for all alternatives would be consistent with the implementation of TLMP (1979, as amended) and Alternative P of the TLMP Draft Revision Supplement (TLMP Draft Revision 1991a).

All action alternatives would reduce the frequency of large, unfragmented old-growth patches (Table S-2). High-value, relatively unfragmented habitats were identified in the Indian Creek drainage and around Cholmondeley Sound. Alternatives 3 and 4 enter both these areas, Alternative 2 enters only the Indian Creek drainage, and Alternative 5 avoids both of them. All alternatives avoid the majority of the area around Cholmondeley Sound. Alternative 1a would reduce fragmentation in the Indian Creek drainage relative to Alternative 1.

MIS habitat capability would be reduced under the action alternatives by 0 to 6 percent depending on the species and alternative (Table S-3). Harvest of medium to high quality winter range for Sitka black-tailed deer would be highest under Alternative 3 and lowest under Alternatives 2 and 5 (Table S-2). Alternative 1a would avoid reductions in habitat capability and winter range availability. None of the alternatives would affect threatened or endangered species.

Table S-1
Physical and Economic Outputs of Alternatives

Item	Units	Alternative					
		1a	1	2	3	4	5
Timber							
Harvest Units	Number	-52	0	100	113	87	92
Harvest Units	Acres	-2,587	0	4,459	4,838	4,044	4,313
Avg. Unit Size		49.8	0	44.6	42.8	46.5	46.9
Avg. Volume per acre (in units)		-	0	26.9	24.8	29.5	27.5
Units over 100 acres	Number	-	0	5	4	4	5
Total Volume (including ROW)	MMBF	-75	0	125	127	126	124
Silvicultural System							
Partial Cut Harvest	Acres	0	0	409	675	251	632
Clearcut Harvest	Acres	-2,587	0	4,050	4,163	3,793	3,681
Types A & B*	Acres	0	0	3,096	3,015	3,236	2,896
Type C*	Acres	0	0	954	1,148	333	785
Type D*	Acres	0	0	1,208	1,126	1,340	1,248
Logging system							
Highlead Harvest	Acres	-	0	2,005	1,994	2,295	1,954
Shovel Harvest	Acres	-	0	28	28	28	28
Running Skyline Harvest	Acres	-	0	1,095	802	1,052	935
Live Skyline Harvest	Acres	-	0	0	38	20	0
Slackline Harvest	Acres	-	0	161	161	161	132
Standing Skyline Harvest	Acres	-	0	0	55	55	0
Helicopter Harvest	Acres	-	0	1,171	1,760	432	1,264
Proposed Proportionality							
Management Area K17 (TTRA Baseline=12.14 %)	Percent	12.17	11.53	11.72	11.56	11.80	11.69
Management Area K18 (TTRA Baseline=38.40%)	Percent	37.41	37.59	38.43	38.22	37.87	38.47
Roads and Facilities							
Road Construction/Reconstruction	Miles	-35	0	49	58	55	44
Road Construction/Reconstruction	Acres	-175	0	244	355	335	223
New Log Transfer Facilities	Number	-3	0	0	1	1	0
Potential for New Logging Camps	Number	-1	0	0	1	1	0
Economics							
Estimated Net Stumpage							
Method 1**	\$/MBF	-	0	42.53	23.96	41.46	45.36
Method 2**	\$/MBF	-	0	30.41	8.70	35.98	30.86
Present Net Value							
Method 1**	\$1,000	-	0	547	-2,212	799	1,005
Method 2**	\$1,000	-	0	-968	-4,157	107	-787
Payments to State of Alaska							
Method 1**	\$ million	-	0	2.9	3.0	3.3	3.0
Method 2**	\$ million	-	0	2.5	2.5	3.2	2.6
Average Annual Direct Jobs over 4 years	# of jobs	-	0	232	244	230	229

* Clearcut types represent different degrees of reserve tree retention. All clearcuts are either Type A, B, or C. Some are also Type D. See Table 2-3 and Chapter 3 for descriptions.

** Methods reflect different estimates of helicopter yarding costs.

Summary

Table S-2
Environmental Consequences of Alternatives

Item	Units	Alternative					
		1a	1	2	3	4	5
Caves							
Harvest Units Potentially Affecting # of Units		-	0	1	2	2	1
Soils							
Area of Soil Disturbance							
Harvest Units	Acres	-	0	335	324	363	316
Roads and Landings	Acres	-	0	503	586	585	454
Total Area Affected by Mass Movement Index Category							
Very High MMI	Acres	-	0	0	0	0	0
High MMI	Acres	-	0	1,685	1,462	1,727	1,899
Wetlands, Floodplains, & Riparian							
Wetland Area Affected							
Harvest Units	Acres	-801	0	1,630	997	1,435	1,613
Roads	Acres	-151	0	261	160	254	240
Class I/II Stream Floodplain							
Road Crossings	Number	8	0	5	6	3	3
Riparian Management Area Harvested	Acres	-253	0	426	593	459	432
Fish and Water Quality							
Road Crossings							
Class I Streams	Number	-11	0	8	12	9	8
Class II Streams	Number	-5	0	10	10	10	6
Class III Streams	Number	-32	0	85	127	124	85
Streamside Vegetation Clearing							
Harvest Units	Miles	-	0	16.4	24.1	21.2	17.1
Roads	Miles	-	0	1.0	1.3	1.3	0.9
Wildlife							
Change in MIS Habitat Capability							
Sitka Black-tailed Deer	Percent	+1	0	-1	-2	-2	-1
Black Bear	Percent	0	0	-2	-1	-2	-2
Marten	Percent	+2	0	-3	-3	-3	-3
Gray Wolf	Percent	0	0	0	0	0	0
River Otter	Percent	0	0	0	0	0	0
Vancouver Canada Geese	Percent	+2	0	-3	-3	-3	-2
Bald Eagle	Percent	0	0	0	0	0	0
Red-breasted Sapsucker	Percent	+3	0	-4	-6	-4	-4
Hairy Woodpecker	Percent	+3	0	-4	-5	-5	-4
Brown Creeper	Percent	+3	0	-3	-3	-4	-3
Change in Deer Winter Range							
High Quality Winter Range	Acres	+418	0	-462	-683	-742	-501
Mid Quality Winter Range	Acres	+439	0	-820	-1,081	-880	-759
Low Quality Winter Range	Acres	-862	0	+1,677	+2,138	+2,017	+1,658

Table S-2 (continued)

Environmental Consequences of Alternatives

Item	Units	Alternative					
		1a	1	2	3	4	5
Biodiversity							
Unfragmented Old-growth Patches Remaining							
>10,000 acres	Number	2	2	1	1	1	1
>5,000 acres	Number	3	3	3	2	3	3
Unfragmented Interior Old-growth Patches Remaining							
>5,000	Number	1	0	0	0	0	0
>1,000 acres	Number	4	5	4	5	4	3
Subsistence							
Deer Habitat Capability	Number	3,358	3,319	3,274	3,255	3,261	3,274
Deer Population Needed to Support Current Harvest	Number	1,520	1,520	1,520	1,520	1,520	1,520
Difference	Number	1,838	1,799	1,754	1,735	1,741	1,754
Harvest Area Used by >10% of Rural Community Households for Deer Hunting							
Acres		-624	0	513	403	399	409
Visual and Recreation Resources							
Area of Viewshed Harvested Twelvemile Arm							
Hollis Area	Acres	0	0	0	289	0	0
Remainder	Acres	-56	0	422	832	646	355
Hollis-Klawock Highway	Acres	0	0	81	81	7	81
Hydaburg Road	Acres	-124	0	296	296	96	296
Forest Road 21	Acres	-211	0	46	46	46	46
Polk Inlet South	Acres	0	0	477	0	423	477
McKenzie Inlet	Acres	-5/8	0	0	0	123	233
Cholmondeley Sound	Acres	0	0	0	40	151	0
ROS Settings							
Change in Area of Unroaded Settings	Acres	+12,100	0	-24,000	-33,900	-18,900	-20,500
Change in ROS at Existing Recreation Sites	# of sites	2	0	4	4	2	4
Change in ROS at Potential Recreation Sites	# of sites	1	0	5	5	1	55
Cultural Resources							
Sites Affected							
Direct Effects	# of sites	0	0	0	0	0	0
Risk of Indirect Effects	# of sites	0	0	0	0	1	2

Figure S-3
Old-growth Harvest and Road Construction/Reconstruction

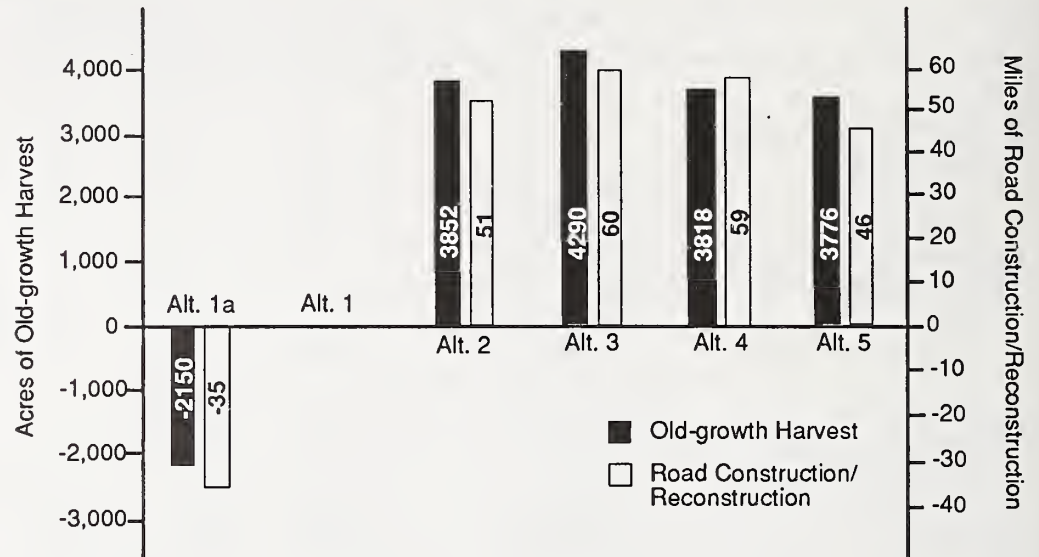


Table S-3
Change in MIS Habitat Capability by Alternative (in percent)

MIS	Alternative					
	1a	1	2	3	4	5
Sitka Black-tailed deer	+1	0	-1	-2	-2	-1
Black Bear	0	0	-2	-1	-2	-2
Marten	+2	0	-3	-3	-3	-3
Gray Wolf	0	0	0	0	0	0
River Otter	0	0	0	0	0	0
Vancouver Canada Geese	+2	0	-3	-3	-3	-2
Bald Eagle	0	0	0	0	0	0
Red-breasted Sapsucker	+3	0	-4	-6	-4	-4
Hairy Woodpecker	+3	0	-4	-5	-5	-4
Brown Creeper	+3	0	-3	-3	-4	-3

Issue 2: Fish Habitat and Water Quality

None of the alternatives are expected to have a measurable effect on fish habitat or water quality. All meet the requirements and intent of the Clean Water Act. Implementation of identified fish habitat enhancement opportunities could increase habitat for fish production. Implementation of TTRA-required stream buffers, additional-width buffers as called for in the standards and guidelines of the TLMP Draft Revision, and BMP's and other related mitigation

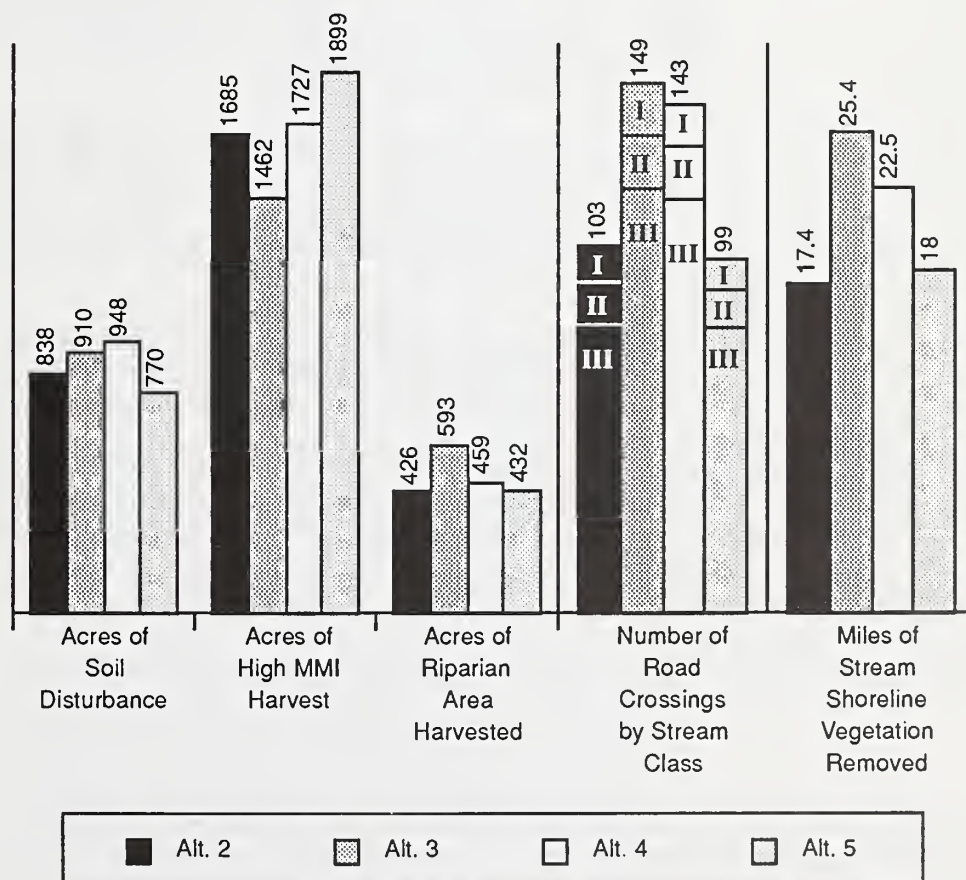
measures would effectively mitigate fish habitat and water quality impacts. These conclusions are supported by the fish habitat capability models for coho and pink salmon and for Dolly Varden char.

Measures of potential risk to water quality and fish habitat are: (1) an index of the amount of soil disturbance, which is related to the area harvested, the logging systems used, and the area disturbed during road construction; (2) the amount of harvest on slopes with a high mass movement index; (3) the amount of riparian area harvested outside of no-cut buffers (primarily around lakes and along Class III streams); (4) the number of Class I, II, and III stream road crossings; and (5) the length of Class III stream shoreline vegetation removal due to timber harvest and road construction. These measures are quantified in Table S-2 and are displayed graphically in Figure S-4 for each of the action alternatives. Figure S-4 shows that Alternatives 2 and 5 rank lowest and Alternatives 3 and 4 rank highest in four of the five measures of potential risk.

Potential effects on marine habitats and organisms would be less under Alternatives 1, 2, and 5 because new LTF's or logging camps would not be required. Alternative 1a would have positive effects because three new LTF's and one new floating logging camp would not be needed, unlike Alternative 1. Alternatives 3 and 4 would have potential negative effects on a small area and for a short timeframe due to the need for one new LTF and one new floating logging camp.

Figure S-4

Risk to Water Quality and Fish Habitat, by Alternative



Summary

Issue 3: Subsistence

Deer hunting is the major aspect of subsistence that is affected by timber harvest. Based on the wildlife analysis, Sitka black-tailed deer habitat capability in the Project Area would be reduced from 1 to 2 percent by the action alternatives (Table S-4). Alternative 3 would have the greatest effect and Alternatives 2 and 5 would have the least effect of the action alternatives. Alternative 1 would result in no change and Alternative 1a would result in a 1 percent increase in habitat capability relative to Alternative 1. In all cases, the habitat is predicted to be well above that needed to support the deer population required for the current harvest level.

The action alternatives would result in the harvest of 399 to 513 acres within areas used by more than 10 percent of rural community households for deer hunting: Alternative 1a would prevent the harvest of 624 acres that would be harvested under Alternative 1.

The analysis indicates that none of the alternatives would cause a significant restriction of subsistence hunting or fishing at this time. However, the analysis suggests that the cumulative effects of timber harvesting, if continued in the future, would reduce habitat capabilities before the end of the first rotation (Year 2054) to an extent that may significantly restrict subsistence use of deer in the Project Area. Because current habitat capability for black bear and marten is below the estimated population level needed to support current harvest levels in some areas, all alternatives would result in a significant possibility of a significant restriction of subsistence use of these species.

Issue 4: Timber Economics and Supply

Preliminary economic analysis conducted for purposes of this EIS only indicates overall net mid-market stumpage values would be positive for all action alternatives (Figure S-5). PNV's would be positive for Alternative 4, range from negative to positive, depending on the cost method used, for Alternatives 5 and 2, and be negative for Alternative 3. Negative PNV's are not uncommon for initial entry sales. All action alternatives are comprised primarily of initial entry sales. Future entries to harvest the remaining old growth would be more positive, since the basic road system would be in place.

Alternatives 4 and 5 would have the highest net stumpage values and PNV's, depending on the cost method, and Alternative 3 would have the lowest values under both cost methods. Because Alternative 4 would construct approximately 11 more miles of road than Alternative 5, future timber sales in the tributary area are likely to have higher efficiency.

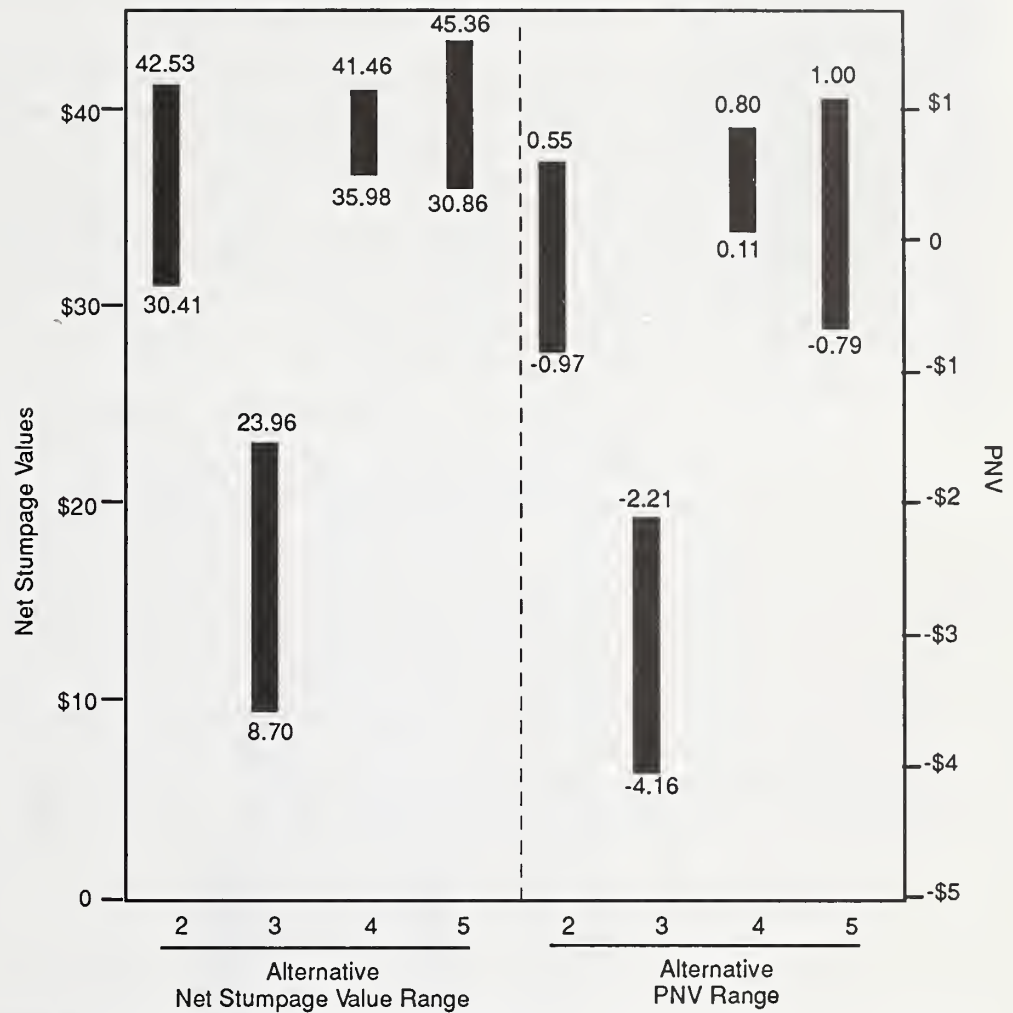
Alternative 1 would result in no timber-related outputs and therefore would not provide any return to the U.S. Treasury. Alternative 1a would result in reduced timber-related economic outputs and returns to the U.S. Treasury relative to Alternative 1.

The economic feasibility of helicopter yarding is more greatly affected by market values than cable yarding. Alternative 4 includes the least and Alternative 3 includes the most helicopter yarding. However, the economic viability of the next entry could be compromised if Alternative 4, and possibly Alternative 2, is selected for the Polk Inlet Project because relatively few cable yarding units may be available.

Timber supply analysis indicates that, given certain conditions, sufficient timber is available both within the Polk Inlet Project Area and on Prince of Wales Island as a whole to sustain the scheduled timber harvest through the end of the first rotation (Year 2054) when second growth would become widely available for harvest. However, this conclusion depends on timber values increasing and/or improved or more efficient logging systems being developed to make economically marginal timber more attractive. If this does not occur, then projected harvest could be reduced by about 12 percent over the next 6 decades (see Chapter 4). It also assumes that no new land use allocations are made in the future that would reduce the timber base.

Figure S-5

Net Stumpage Values (\$/MBF) and PNV's (\$million)



Issue 5: Visual Quality, Recreation, and Tourism

During the Project Area visual assessment, 7 viewsheds were identified. Among these, four are considered most important for comparison because of their visual sensitivity and the presence of harvest units within them, at least for some alternatives. These are: (1) Twelvemile Arm, (2) Hollis-Klawock Highway, (3) Hydaburg Road, and (4) Cholmondeley Sound.

The largest change would occur in the Twelvemile Arm viewshed under Alternative 3 in views to the south of the Hollis Area and the ferry route. Although mitigation has reduced the degree of change so that the Visual Quality Objective (VQO) would be met, a change from generally untouched (I) to moderately altered (IV) would occur. In all other alternatives, no change would occur in this area.

The second greatest change would occur in mid and upper Twelvemile Arm, also under Alternative 3. Here, the Existing Visual Condition (EVC) would change from slightly altered (III) to heavily altered (V) along most of the shoreline. Alternative 4 would have slightly less effect in this area, but would still result in a change to heavily altered (V) throughout much of the viewshed.

Summary



Fishing is a popular recreation activity in the Project Area

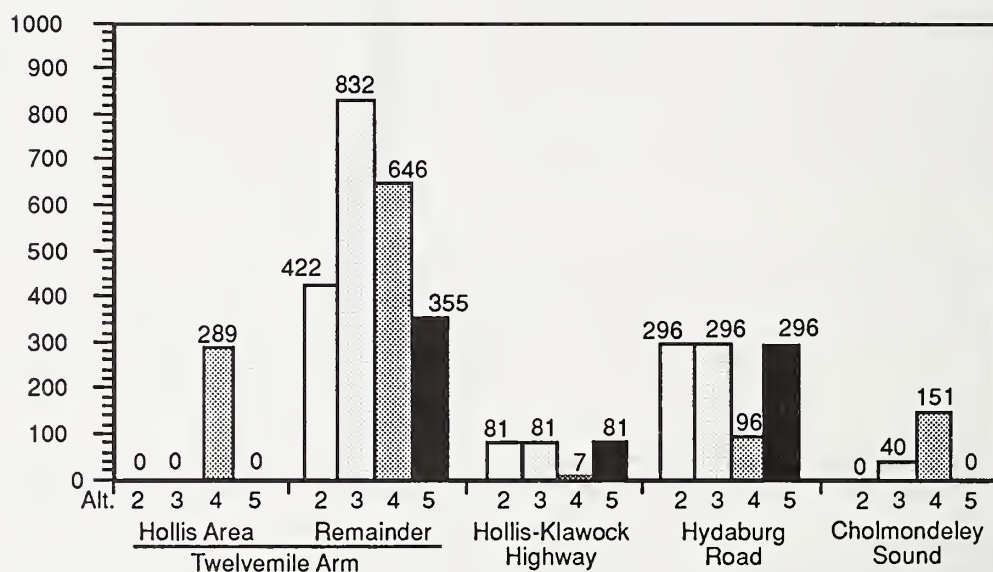
Changes in EVC would range from none to slight along the Hollis-Klawock Highway, depending on the alternative. Harvest along most of this area was deferred for all alternatives due to the existing cumulative visual disturbance. Similarly, changes in the Cholmondeley Sound area would range from none to slight. Harvest throughout most of this area was deferred until future entries due to cumulative visual disturbances associated with past and future Native corporation harvest and high wildlife and fish habitat values.

Alternative 1 would have no effect on visual quality in the Project Area. Under Alternative 1a, visual quality would remain generally unchanged in the sensitive viewsheds. However, visual quality would be enhanced in McKenzie Inlet, the Twentymile drainage, and the Indian Creek drainage. Figure S-6 summarizes the area of each viewshed harvested by alternative.

The alternatives would have minimal effects on existing and potential recreation sites. All action alternatives would result in a reduction in the area of unroaded Recreation Opportunity Spectrum (ROS) settings (Table S-2). The greatest reduction would occur under Alternative 3 and the least under Alternative 4. The area of unroaded settings would increase under Alternative 1a relative to Alternative 1.

Figure S-6

Acreage Harvested in Key Viewsheds



Issue 6: Social and Economic Factors

Payments to the State of Alaska (under the National Forest Receipts Act) would range from \$2.5 million to \$3.3 million under the action alternatives (Table S-1) depending on the cost method. Average annual jobs created would range from 229 to 244 over 4 years. Alternative 1 would eliminate all Project-related receipts to the State and jobs created (Table S-1). Alternative 1a would reduce economic returns to the State and jobs created relative to Alternative 1.

The action alternatives generally would have minimal effect on the resource-based lifestyles of communities in and near the Project Area. Exceptions would be for the residents of Sunny Cove under Alternative 3 and the residents at the mouth of Cannery Creek under Alternative 4. Timber harvesting, road and LTF construction, and the existence of nearby logging camps would result in changes in the natural character of the areas and at least a temporary increase in the competition for natural resources due to the residents of the logging camps.

Under Alternatives 1 and 1a, lack of timber activity in the Project Area would likely result in the shutdown of the Polk Inlet logging camp and community with resulting economic impacts on its residents. Negative economic impacts would, at least temporarily, affect some residents of Craig, Klawock, Hollis, Hydaburg, and Ketchikan who depend directly or indirectly on timber harvesting in the Project Area.

Issue 7: Local Water Supplies

Timber harvest and road construction are not expected to affect local water supplies in the Project Area.

Issue 8: Cave Resources

One to two harvest units in each action alternative were identified during field surveys as having potentially significant cave resources. Mitigation measures would be implemented to avoid impacts unless further surveys determine no significant resources are associated with the caves.

Mitigation Measures

The proposed revised Forest Plan (TLMP Draft Revision 1991a) presents management prescriptions for each land use designation and Forest-wide standards and guidelines that are to be followed in the development of mitigation measures. Likewise, the plan provides Forest management goals and objectives but does not contain project decisions. The analysis supporting this EIS discloses possible adverse impacts that are specific to the locality and to the actions proposed. Measures were formulated to mitigate these impacts guided by forest management goals and objectives, under the overall direction given by the proposed land use designation management prescription, and following the proposed Forest-wide standards and guidelines. Many of these measures result in the complete elimination or deferral of harvest from geographic areas. Table S-4 identifies the areas avoided and gives a brief description of the reasons for their deferral. Site-specific mitigation measures are detailed in the Draft EIS and in the unit and road design cards in Appendices E and F.

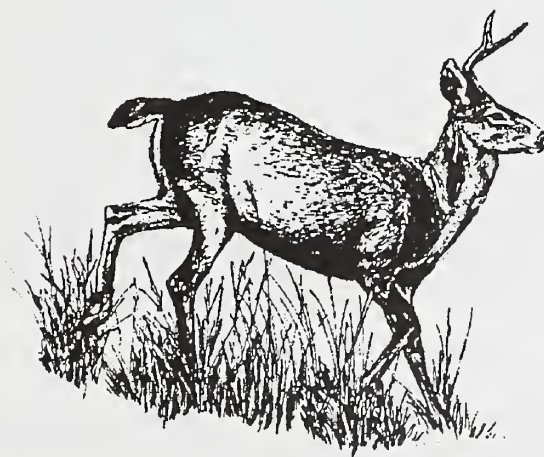


Table S-4

Mitigation through Avoidance of Geographic Areas

Geographic Area	Reason for Deferral
Maybeso Experimental Forest (VCU 610)	Evaluation of research opportunities
Hollis-Klawock Highway (VCU 622)	Cumulative visual disturbance from previous harvests
Twentymile Creek (VCU 622)	Cumulative visual disturbance, adjacency, or wildlife habitat values
Northeast of Hollis (VCU 611)	Sensitivity Level I visual status/low visual absorption capacity
Southwest End of Twelvemile Arm (VCU 621)	Cumulative visual disturbances from previous harvests
Beaver Creek Watershed (VCU 621)	Cumulative watershed effects from previous harvests including Native corporation land
Big Creek, Sulzer Portage, West Arm Cholmondeley Sound West of Cannery Creek (VCU 647)	Potential cumulative visual disturbances from past and future logging activities; high wildlife and fish habitat values

Monitoring Plan

Monitoring activities can be divided into three broad categories: Forest Plan monitoring, routine implementation monitoring, and project-specific monitoring. These broad types are discussed in the following sections.

Forest Plan Monitoring

The National Forest Management Act requires that National Forests monitor and evaluate their forest plans (36 CFR 219.11). The significance of this requirement is emphasized by the recent development of a National Monitoring and Evaluation Strategy (Forest Service 1993). The Strategy is designed to focus agency attention and resources on evaluating implementation of forest plans to provide the Forest Service with information necessary to ensure responsive and efficient management of National forests. Embodied in the National Monitoring and Evaluation Strategy are three principles: (1) evaluation of results will be readily available to the public, agencies, and other groups; (2) monitoring and evaluation will focus on ecosystems and emphasize interrelationships among biotic and abiotic components; and (3) the strategy will be flexible to meet local needs while encompassing forest, regional, and national requirements.

Three levels of monitoring are incorporated into Forest Plan monitoring and evaluation:

Implementation Monitoring is used to determine if goals, objectives, standards and guidelines, and management prescriptions are implemented as detailed in the Forest Plan and project specifications;

Effectiveness Monitoring is used to determine if standards and guidelines and management prescriptions as designed and implemented are effective in meeting Forest Plan goals and objectives; and

Validation Monitoring is used to determine whether the data, assumptions, and coefficients used in the development of the Plan are correct.

Most monitoring elements involve the mitigation measures described previously. The mitigation measures are part of a process that includes these three types of monitoring to determine if the measure was implemented and is effective or needs revision. The feedback provided by monitoring results can be used to develop improved methods or additional treatments to ensure that the mitigation will be effective in the future. Figure S-7 displays how this process of mitigation and monitoring occurs.

An annual monitoring report will be prepared by each Administrative Area of the Tongass and incorporated into one Tongass report at the end of each year beginning with Fiscal Year 1993. This report will address all monitoring questions contained in the applicable Forest Plan; reference all monitoring being conducted on the Area/Forest; assess progress towards achieving the goals and objectives described in the Forest Plan; and either certify that the Forest Plan is sufficient to guide management of the forest over the next year or propose needed changes and an approach for dealing with those changes.

Forest Plan monitoring is conducted over the entire forest on a sample basis. Samples may or may not be taken within the Polk Inlet Project Area; however, monitoring results are designed to answer questions regarding the implementation and effectiveness of mitigation within the Project Area. A total of 38 implementation, effectiveness, and validation monitoring items are identified in the forest-wide monitoring plan described in the TLMP Draft Revision (1991a).

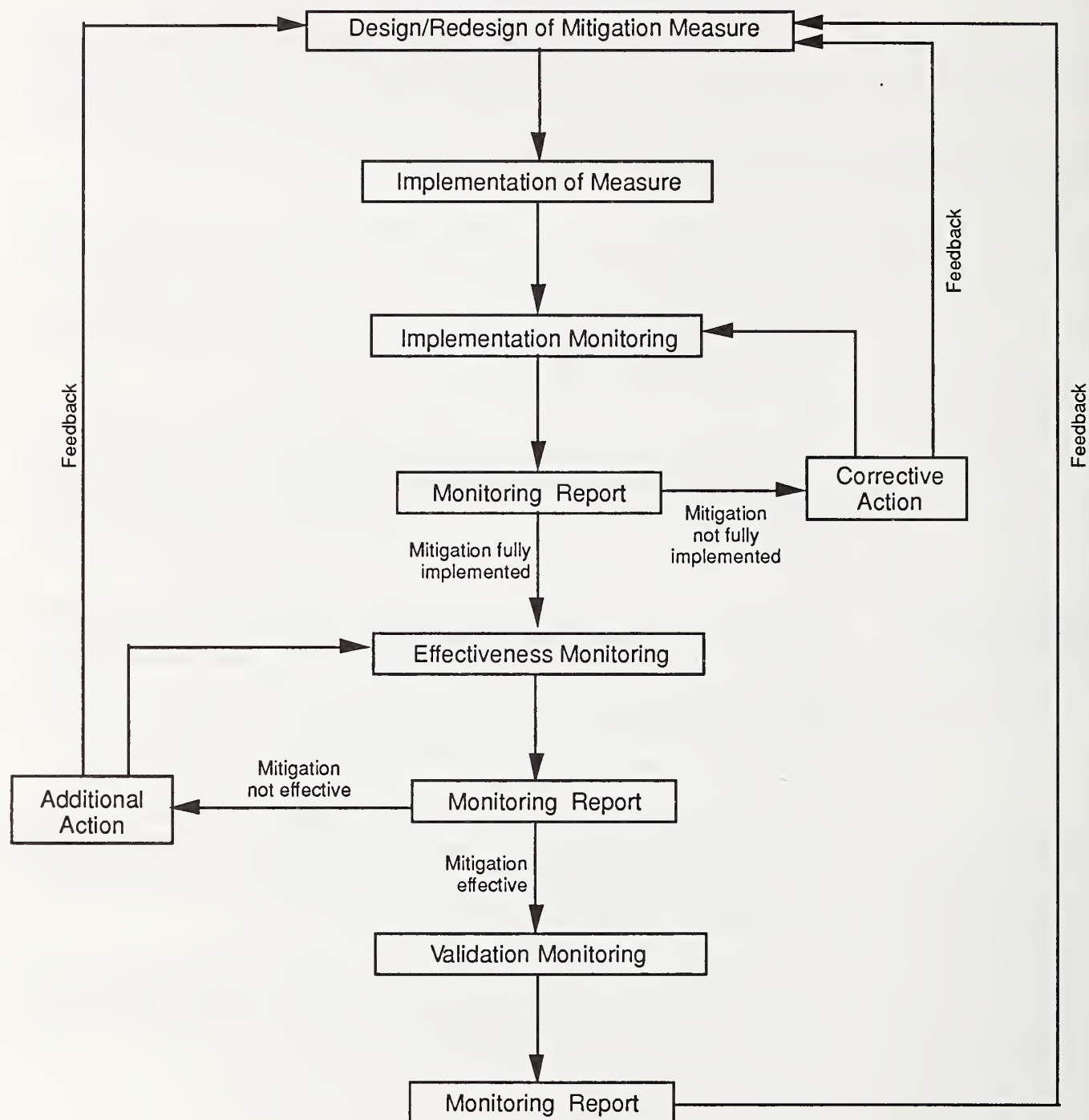
Routine implementation monitoring assesses whether the project was implemented as designed and whether or not it complies with the Forest Plan. Planning for routine implementation monitoring began with the preliminary design of harvest units and roads. Specialists used on-the-ground inventories, computer inventories, and aerial photographs to prepare documents called unit cards for each harvest unit in each of the alternatives. Cards were also prepared for each segment of road. Resource specialists wrote their concerns on the cards and then described how the concerns could be addressed in the design of each unit and road segments. Integrated silvicultural prescriptions were prepared to describe the detailed interdisciplinary prescription for each unit. Resource concerns, mitigation measures, and prescriptions will be refined further during final layout when specialists will have one more opportunity to revise the unit and road card recommendations and integrated silvicultural prescriptions. The unit and road cards and prescriptions will be the basis for determining whether recommendations were implemented for various aspects of the Polk Inlet Project.

Routine implementation monitoring is part of the administration of a timber sale contract. The sale administrators and road inspectors ensure that the recommendations contained on the unit and road cards and the prescriptions are incorporated into contract documents and then monitor performance relative to contract requirements.

Routine Implementation Monitoring

Summary

Figure S-7
Mitigation/Monitoring Feedback Loop



Project-specific Monitoring

In addition to the Forest Plan monitoring and routine implementation monitoring that will be conducted throughout the Tongass National Forest, including the Polk Inlet Project Area, two Project-specific monitoring activities are identified. These are: marbled murrelet monitoring to determine if nest-site buffers are effective; and ecosystem-management monitoring to determine if the four types of clearcuts and partial cutting prescribed have been implemented and appear to be effective.

Availability of Project Files

The Planning Record is a comprehensive project file documenting the process of developing this EIS. A library of important supporting documents and maps from the Planning Record will be maintained at the Forest Supervisor's office in Ketchikan, Alaska. The complete Planning Record is in the Bellevue, Washington office of the contractor (Ebasco Environmental) that conducted the environmental analysis in consultation with the Forest Service. Many items can be found at both Ebasco Environmental and the Forest Supervisor's office. The reader may also want to refer to the Tongass Land Management Plan (TLMP 1979a, as amended), the TLMP Draft Revision (1991a), the Tongass Timber Reform Act, the Alaska Regional Guide and its Final EIS, the Resource Planning Act, the Alaska National Interest Lands Conservation Act, and the Alaska Native Claims Settlement Act. These are available at public libraries around the region as well as at the Supervisor's office in Ketchikan.



